

Applicant: Fredberg et al.  
For: RADOME REINFORCED WITH POLYESTER-POLYARYLATE  
FIBERS AND A METHOD OF MAKING SAME

- 1           1.     A radome comprising flexible composite fabric material including  
2     polyester-polyarylate fibers in a flexible resin matrix material.
- 1           2.     The radome of claim 1 in which the polyester-polyarylate fibers are woven  
2     into fabric.
- 1           3.     The radome of claim 1 in which the polyester-polyarylate fibers are knitted  
2     into fabric.
- 1           4.     The radome of claim 1 in which the flexible resin matrix is a polyurethane  
2     resin.
- 1           5.     The radome of claim 1 further including a skin bonded to the flexible  
2     composite fabric material.
- 1           6.     The radome of claim 5 wherein the skin is comprised of  
2     polytetrafluoroethylene (PTFE).
- 1           7.     The radome of claim 5 wherein the skin is comprised of fluorinated  
2     ethylene propylene (FEP).

1            8.     The radome of claim 5 wherein the skin is comprised of perfluoroalkoxy  
2     resin (PFA).

1            9.     The radome of claim 1 in which the polyester-polyarylate fibers have a  
2     length of several hundred feet.

1            10.    The radome of claim 1 in which the polyester-polyarylate fibers form  
2     yarns.

1            11.    The radome of claim 10 in which the yarns are woven.

1            12.    The radome of claim 10 in which the yarns are knitted.

1            13.    The radome of claim 1 in which the flexible composite fabric material is  
2     comprised of one ply.

1            14.    The radome of claim 1 in which the flexible composite fabric material  
2     includes more than one ply.

1            15.    The radome of claim 2 in which the fabric is multi-axial.

1            16.    The radome of claim 3 in which the fabric is multi-axial.

- 1 17. A radome comprising flexible composite material including polyester-
- 2 polyarylate fibers woven in a flexible resin matrix.

- 1 18. A radome comprising flexible composite material including polyester-
- 2 polyarylate fibers knitted in a flexible resin matrix.

1           19.     A method of producing a radome, the method comprising:  
2                     combining polyester-polyarylate fibers with a flexible resin matrix  
3                     material to form a flexible composite fabric material.

1           20.     The method of claim 19 in which the polyester-polyarylate fibers are  
2                     woven into fabric.

1           21.     The method of claim 19 in which the polyester-polyarylate fibers are  
2                     knitted into fabric.

1           22.     The method of claim 19 in which the flexible resin matrix material is a  
2                     polyurethane resin.

1           23.     The method of claim 19 further including bonding a skin to the flexible  
2                     composite fabric material.

1           24.     The method of claim 23 wherein the skin is comprised of  
2                     polytetrafluoroethylene (PTFE).

1           25.     The method of claim 23 wherein the skin is comprised of fluorinated  
2                     ethylene propylene (FEP).

1           26.     The method of claim 23 wherein the skin is comprised of perfluoroalkoxy

2 resin (PFA).

1 27. The method of claim 23 wherein the skin is bonded to the flexible  
2 composite fabric material by chemical etching.

1 28. The method of claim 23 wherein the skin is bonded to the flexible  
2 composite fabric material by corona treatment combined with adhesive bonding.

1 29. The method of claim 23 wherein the skin is bonded to the flexible  
2 composite fabric material by lamination.

1 30. The method of claim 23 wherein the skin is bonded to the flexible  
2 composite fabric material by melt processing.

1 31. The method of claim 19 further including forming plies of flexible  
2 composite fabric material.

1 32. The method of claim 20 in which the fabric is multi-axial.

1 33. The method of claim 21 in which the fabric is multi-axial.